AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An electrically operated tuning fork apparatus, comprising:

a tuning fork having a base and a pair of tines, said tines having tips remote from said base and formed of or including material in which a magnetic field can be induced; and

an electrical coil having a substantially linear longitudinal axis within said coil, at least a portion of both tines of said tuning fork being located within said coil and parallel to said axis, with no portion of said coil being located between the tines of said tuning fork;

whereby at least one of said tines can be vibrated relative to the other of said tines by passing a varying ~~, substantially uni-directional~~ current through said coil to thereby induce mutually repulsive magnetic fields in said tines essentially transverse to said tines.

2. (Original) An apparatus as claimed in claim 1, wherein said varying current has a substantially square wave form.

3. (Original) An apparatus as claimed in claim 1, wherein said varying current has a substantially square wave form and a substantially 50% duty cycle.

4. (Previously Presented) An apparatus as claimed in claim 1, wherein said tips of the tines protrude from the coil so that at least one of said tips can vibrate by a greater amplitude than can be accommodated by said coil.

5. (Previously Presented) An apparatus as claimed in claim 1, wherein said coil is elliptical, with a major axis oriented in the plane of vibration of the tines, so that a reduction in the total size of the apparatus can be achieved.

6. (Previously Presented) An apparatus as claimed in claim 1, wherein said apparatus includes additional magnetically permeable material located outside said coil for providing a return path for the magnetic field produced by said coil, and to attract said tines towards said additional material to augment the repulsive magnetic fields in said tines.

7. (Previously Presented) An apparatus as claimed in claim 1, wherein one of said tines is more massive than the other of said tines, so that the other of said tines is deflected while said more massive of said tines is substantially undeflected.

8. (Previously Presented) An apparatus as claimed in claim 7, wherein said more massive of said tines is tapered to accommodate deflection of the other of said tines.

9. (Previously Presented) An apparatus as claimed in claim 1, including a biasing permanent magnet adjacent said base of said tuning fork or located around at least a portion of said tuning fork.

10. (Previously Presented) An apparatus as claimed in claim 1, including an optical fibre located on said at least one of said tines.

11. (Previously Presented) An apparatus as claimed in claim 1, wherein said coil is tapered according to the deflection curve of said tines.

12. (Previously Presented) An apparatus as claimed in claim 1, wherein said coil does not include a former.

13. (Previously Presented) An apparatus as claimed in claim 1, wherein said apparatus includes a sensor to provide a signal indicative of the position of said at least one tine so that the tuning fork can be maintained at resonance.

14. (Previously Presented) An apparatus as claimed in claim 13, wherein said sensor is a piezoelectric sensor, a fiber sensor system, a hall effect sensor or a series capacitive sensor.

15. (Previously Presented) An endoscope, microscope or endomicroscope including an apparatus as claimed in claim 1.

16. (Previously Presented) A scanning head for an endoscope, microscope or endomicroscope including an apparatus as claimed in claim 1.

17. (Currently Amended) A method for electrically vibrating a tuning fork having a base and a pair of tines, said tines having tips remote from said base and formed of or including material in which a magnetic field can be induced, said method comprising:

locating at least a portion of said tines within an electrical coil parallel to a <u>substantially linear</u> longitudinal axis of said coil<u>, with no portion of said coil being located between the tines of said tuning fork</u>, said longitudinal axis of said coil being within said coil; and

passing a varying ~~, substantially uni-directional~~ current through said coil to induce mutually repulsive magnetic fields in and essentially transverse to said tines to thereby

induce at least one of said tines to vibrate relative to the other of said tines.

18. (Original) A method as claimed in claim 17, wherein said varying current has a substantially square wave form.

19. (Original) A method as claimed in claim 17, wherein said varying current has a substantially square wave form and a substantially 50% duty cycle.

20. (Previously Presented) A method as claimed in claim 17, including arranging said tips to protrude from said coil so that at least one of said tips can vibrate by a greater amplitude than can be accommodated by said coil.

21. (Previously Presented) A method as claimed in claim 17, wherein said coil is elliptical, with a major axis oriented in the plane of vibration of said at least one tine.

22. (Previously Presented) A method as claimed in claim 17, including providing additional magnetically permeable material located outside said coil to provide a return path for the magnetic field produced by said coil, and thereby attracting said tines towards said additional material to augment the repulsive magnetic fields in said tines.

23. (Previously Presented) A method as claimed in claim 17, wherein one of said tines is more massive than the other of said tines, so that the other of said tines is deflected while said more massive of said tines is substantially undeflected.

24. (Previously Presented) A method as claimed in claim 23, wherein said more massive of said tines is tapered to accommodate deflection of the other of said tines.

25. (Previously Presented) A method as claimed in claim 17, including varying said current so as to vibrate said tuning fork at the resonant frequency of said tuning fork.

26. (Previously Presented) A method as claimed in claim 17, including magnetically biasing said tuning fork by locating a permanent magnet adjacent said base of said tuning fork or located around at least a portion of said tuning fork.

27. (Previously Presented) A method as claimed in claim 17, including providing a signal indicative of the position of said at least one tine so that the tuning fork can be maintained at resonance.

28. (Previously Presented) A method as claimed in claim 27, wherein said signal is provided by a sensor and wherein said sensor is a piezoelectric sensor, a fiber sensor system, a hall effect sensor or a series capacitive sensor.

29. (Previously Presented) A method of vibrating an optic fiber in an endoscope, a microscope or an endomicroscope including the method as claimed in claim 17.

30. (New) An apparatus as claimed in claim 1, wherein said varying current is substantially uni-directional.

31. (New) An apparatus as claimed in claim 1, wherein said coil is substantially cylindrical.

32. (New) An apparatus as claimed in claim 1, wherein said apparatus includes a piezoelectric sensor mechanically coupled to said tuning fork to provide a signal indicative of a deflection angle of one of said tines.

33. (New) An apparatus as claimed in claim 1, wherein said apparatus includes a fiber sensor system comprising a first optical fiber for directing laser light onto a portion

of one of the tines, a second optical fiber for collecting the laser light reflected from said portion of said one of the tines, and a photodetector for detecting laser light collected by said second optical fiber and outputting an output signal, wherein said output signal is indicative of the deflection of said one of the tines.

34. (New) An apparatus as claimed in claim 1, wherein said apparatus includes a hall effect sensor located on one of said tines for providing an output signal indicative of local magnetic flux density and hence of the movement of said one of said tines.

35. (New) An apparatus as claimed in claim 1, wherein the tuning fork is insulated from other portions of said apparatus, and said apparatus includes:

a signal generator for applying a high frequency signal to said tuning fork;

a series capacitive sensor on one of said tines;

a modulator for amplitude modulating an output signal from said series capacitive sensor; and

an amplifier for amplifying the amplitude modulated output signal;

wherein said current is derived from the amplified and amplitude modulated output signal.

36. (New) A method as claimed in claim 17, wherein said varying current is substantially uni-directional.

37. (New) A method as claimed in claim 17, wherein said coil is substantially cylindrical.

38. (New) A method as claimed in claim 17, including determining a deflection angle of one of said tines from an output signal from a piezoelectric sensor mechanically coupled to said one of said tines.

39. (New) A method as claimed in claim 17, including reflecting laser light from a portion of one of the tines, collecting the laser light reflected from said portion of said one of the tines, detecting the reflected laser light, and determining a deflection of said one of the tines from variations in said detected laser light.

40. (New) A method as claimed in claim 17, including determining the movement of one of said tines from an output signal of a hall effect sensor located on said one of said tines.

41. (New) A method as claimed in claim 17, including:

insulating said tuning fork;

applying a high frequency signal to said tuning fork;

collecting an output signal from a series capacitive sensor located on one of said tines;

amplitude modulating said output signal;

amplifying the amplitude modulated output signal; and

deriving said current from the amplified and amplitude modulated output signal.